

## **Development of a Near Real-Time, *in situ* Method for Measuring Fecal Contamination in Fresh and Marine Waters**

Robert Burgess

Research Environmental Scientist

U.S. EPA Office of Research and Development (ORD)

U.S. EPA National Health and Environmental Effects Research Laboratory (NHEERL)/Atlantic Ecology Division

(401) 782-3106

burgess.robert@epa.gov

**Authors:** Robert M. Burgess<sup>1</sup>, Heather Saffert<sup>2</sup>, Alfred Hanson<sup>2</sup>, David C. Smith<sup>2</sup>, David Turin<sup>3</sup>, David Burnett<sup>4</sup>

<sup>1</sup>U.S. EPA ORD/NHEERL/Atlantic Ecology Division

<sup>2</sup>University of Rhode Island/Graduate School of Oceanography

<sup>3</sup>U.S. EPA Region 1/Office of Environmental Protection

<sup>4</sup>State of Rhode Island/Department of Public Health

**Keywords:** fecal contamination, beaches, real-time, RARE, *in situ*

Fecal contamination of freshwater and marine beaches is a major public health concern. Currently, methods for measuring fecal contamination require a 24- to 48-hour testing time. This testing time interferes with environmental managers making decisions in real-time. Consequently, when deciding whether to open or close a beach following a storm event, an environmental manager must use data that is at least 24 hours old. In recent years, research efforts have been underway to develop a near real-time fecal contamination method. In theory, such a method would allow for the measurement of fecal contamination in one to two hours. Further, if the method was self-contained, small, and portable, it would be possible to avoid the need for sending samples from the collection point to a testing laboratory. For this Regionally Applied Research Effort (RARE) project, the Atlantic Ecology Division (AED) and Region 1 collaborated with researchers from the University of Rhode Island (URI) and environmental managers from the State of Rhode Island Department of Health to produce a proof-of-concept demonstration on the feasibility of developing a near real-time *in situ* fecal contamination method. The two-year project resulted in a prototype detector. The project also served as seed money for the URI researchers to acquire more funding from the National Oceanic and Atmospheric Administration (NOAA) to continue method development. Based on the proof-of-concept work funded by RARE, within two years, it is likely that a near real-time *in situ* method will be field tested at beaches in Region 1.

This abstract does not necessarily reflect U.S. EPA policy.